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The Impact of COVID-19 on Latinos, 3 yearn in: Trends in Health Outcomes and Vaccinations in the U.S., California, and Los Angeles County

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THE IMPACT OF COVID-19 ON LATINOS, 3 YEARS IN:

TRENDS IN HEALTH OUTCOMES AND

VACCINATIONS IN THE U.S., CALIFORNIA,

AND LOS ANGELES COUNTY

UCLA

**Latino Policy &
Politics Institute**

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This project builds on LPPIs' research portfolio to study and identify racial health disparities and develop policy solutions to improve the well-being of Latinos. This research brief builds on previous studies conducted by researchers at LPPi to understand how the COVID-19 pandemic and vaccination efforts have impacted marginalized communities.

As part of UCLA, a land grant institution, the Latino Policy and Politics Institute acknowledges the Gabrielino and Tongva peoples as the traditional land caretakers of Tovaangar (Los Angeles basin, Southern Channel Islands) and that their displacement has enabled the flourishing of UCLA.

DISCLAIMER

The views expressed herein are those of the authors and not necessarily those of the University of California, Los Angeles as a whole. The authors alone are responsible for the content of this report.

FOR MORE INFORMATION

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EXECUTIVE SUMMARY

As of May 2023, the U.S. has experienced more than 3 years of the COVID-19 pandemic. Since the beginning of the pandemic, the U.S. has counted more than 104 million confirmed cases and more than 1.1 million confirmed deaths attributed to the virus.¹

In the early months of the pandemic, a large body of research showed that COVID-19 disproportionately affected Black, Latino, and Native American individuals. Further, during the vaccine rollout, research showed that these efforts resulted in an uneven distribution of vaccines.² With the expiration of the federal Public Health Emergency for COVID-19 on May 11, 2023, and as COVID-19 transitions to an endemic disease, important questions remain:

1. Have racial disparities in COVID-19 cases persisted since their initial peaks? and
2. To what extent have vaccination campaigns succeeded in reaching the most vulnerable populations since the initial vaccine authorizations?

We answer these questions using available data from the Centers for Disease Control and Prevention (CDC). We compared rates of cumulative cases, hospitalizations, and deaths by race and ethnicity for all age groups from March 2020 through February 2023 across the U.S., California, and Los Angeles County. We focused our analysis on key milestones in the pandemic related to vaccine availability and eligibility. We then examined trends in the shares of individuals who remained unvaccinated from December 2022 through January 2023 by race and ethnicity. This allowed us to understand better not only trends in COVID-19 disparities but also how the availability and uptake of vaccines impacted them.

Our key findings are:

- During the first year of the pandemic, Latinos experienced a disproportionate rate of cases, hospitalizations, and deaths across the U.S., California, and Los Angeles County relative to their share of the population.

- As of February 2023, Latinos still represented a disproportionate share of cases for the U.S. and Los Angeles County. However, in California, the Latino share of COVID-19 cases (35%) had fallen below their share of the state population (39%).
- Hospitalization rates for the Black population have remained disproportionately high compared to their share of the population and have shown no significant improvement since the start of the pandemic for the U.S., California, and Los Angeles County.
- COVID-19-related deaths for Latinos in all three geographic levels decreased throughout the pandemic but have remained higher than their share of the population in California and Los Angeles County.
- In the first 6 months after the COVID-19 vaccine became available, the Latino and Black populations across the U.S., California, and Los Angeles County were the groups least likely to have completed their primary series of vaccines.
- Although vaccination rates among the Latino and Black populations have increased, as of January 2023, California and Los Angeles County vaccination data show that higher shares of Black and Latino groups were not fully vaccinated than white and Asian populations.

Based on our findings, we propose policy recommendations to improve data collection infrastructure to more accurately document and respond to health care disparities, especially during national emergencies. We also support the commitment to policies rooted in the equitable distribution of resources for alleviating the burden of COVID-19 on minoritized populations. This includes free access to the COVID-19 vaccine for the uninsured population as the availability of the vaccines transitions to the commercial market. Finally, we recommend reauthorizing the Pandemic and All-Hazards Preparedness Act with improvements aimed at mitigating future health disparities exacerbated by nationwide emergencies.

INTRODUCTION

DISPROPORTIONATE IMPACTS OF COVID-19

Over the last 3 years, racial and ethnic minorities in the U.S. have experienced higher COVID-19 infection and mortality rates than their white counterparts.³ Early in the pandemic, Black, Latino, Asian, and Native American individuals faced higher hospitalization and intensive care unit (ICU) admissions rates due to COVID-19 than white patients.⁴ For example, the Latino hospitalization rate due to COVID-19 was four times greater than that of white patients.⁵ Further, as of August 2021, Latinos had experienced a mortality rate 9.2 times that of white patients.⁶

Many of these observed COVID-19 disparities are explained by inequities in social and structural determinants of health. Black, Latino, and Asian people are more likely to live in multigenerational homes, increasing their exposure and transmission risk.⁷ They are also most commonly employed as frontline and public-facing workers, limiting their ability to social distance and work remotely—and simultaneously often have little access to quality health care.⁸ Since 2019, Latinos have been more likely to be uninsured and more likely to experience cost-related delays in care.⁹ Black, Latino, and Asian households were also more likely to report being unable to catch up with housing payments than white households between 2021 and 2022.¹⁰ Evidence suggests that higher eviction rates worsened the COVID-19 infection rates for these groups.¹¹

These structural factors contributing to COVID-19 disparities were all the more prevalent in California. In 2019, more than two in five essential California workers were Latino, compared to just one in five essential workers nationally.¹² Latinos in California were also eight times more likely to live in crowded households with an essential worker than white people.¹³ As a result, between March and October 2020, studies showed more than 70% of COVID-19 cases in California were among Latinos, and about half of everyone who died was Latino.¹⁴ Death rates among Latino and Black Californians were more than 1.5 times higher than that of the white population.¹⁵ These inequities were most apparent during

the first 6 months of the pandemic, when mortality rates for California Latinos ages 20 to 54 were 8.5 times those of white individuals of the same age.¹⁶

Meanwhile, outcomes in Los Angeles County mirrored these trends, with Latino and Black people twice as likely to die of COVID-19 as whites.¹⁷ Poor COVID-19 outcomes in the county occurred in predominantly Latino areas with strong concentrations of essential workers living in crowded households.¹⁸

VACCINATION EFFORTS AMONG MARGINALIZED COMMUNITIES

Vaccination efforts to protect against COVID-19 began at the end of 2020 and continue in 2023 with the rollout of boosters to combat variants of the virus. Despite efforts to achieve an equitable distribution of vaccinations, disparities in vaccination rates remain prevalent by race and ethnicity. As of July 2022, Black individuals had the lowest vaccination rates nationally.¹⁹ Meanwhile, in California, both Black and Latino individuals were less likely to be vaccinated than their white and Asian counterparts.²⁰

Research has attributed these lower vaccination rates among marginalized communities to various causes, such as exposure to misinformation about the COVID-19 vaccine;²¹ mistrust in the U.S. health care system due to historical injustices; desires for autonomy; uncertainty about eligibility;²² and discrepancies in the availability and distribution of vaccines.²³ Although the COVID-19 vaccine is free and available to all regardless of insurance or legal status, some businesses administering vaccines (e.g., major pharmacies) have asked patients for proof of insurance and a Social Security number to receive their vaccinations.²⁴ Wealthier neighborhoods—which tended to be whiter—also had disproportionately easy access to vaccines, and many Black and Latino communities lacked access to culturally and linguistically appropriate information.²⁵ Notably, in Los Angeles County, early vaccine hesitancy was highest among Black and Latino persons and those with incomes below \$20,000 a year.²⁶



RESEARCH CONTRIBUTIONS

Empirical research has established that COVID-19 disproportionately affected Black, Latino, and Native American individuals early in the pandemic and that vaccination efforts resulted in an uneven distribution of vaccines. However, several questions remain, including:

1. Have racial disparities of COVID-19 persisted since their initial peaks? and
2. To what extent have vaccination campaigns succeeded in reaching the most vulnerable populations since the initial vaccine authorizations?

In particular, we are interested in understanding how disparities in COVID-19 cases and vaccination rates have played out at the state and local levels over the past 3 years.

METHODOLOGY

In this brief, we examine COVID-19 cases, hospitalizations, and deaths in the U.S., California, and Los Angeles County using publicly available surveillance data from the CDC.²⁷ Hospitals, health care providers, and laboratories report COVID-19 cases to local public health departments, as required by the state. Next, public health departments voluntarily send de-identified patient-level data about COVID-19 cases to the CDC. The CDC processes and aggregates case data across all jurisdictions to create the surveillance dataset.²⁸ Details on each data source and relevant data limitations are available in Appendix A.

Using the CDC data, we analyze COVID-19 trends for the Latino, Black, white, and Asian populations of all age groups and compare them to their shares of the overall population in each respective geography. Data for Latinos are of any race, and data for all other races and ethnicities are non-Hispanic population estimates: white non-Hispanic, Black non-Hispanic, and Asian non-Hispanic. We present cumulative trends, beginning in March 2020—when the World Health Organization first declared COVID-19 a pandemic²⁹—through the following dates: December 2020, when the first American received a COVID-19 vaccine outside of clinical trials;³⁰ May 2021, when the vaccine was authorized

for adolescents ages 12 to 15 years old;³¹ November 2021, when the vaccine was authorized for children ages 5 to 11 years old;³² June 2022, when the vaccine was authorized for children under 5;³³ and February 2023, marking a full 36 months of COVID-19 data.

Additionally, we analyze vaccination trends for the U.S., California, and Los Angeles County by race and ethnicity over the same periods. We examine national trends in vaccination using publicly available data from the CDC,³⁴ and assessed vaccination data for California and Los Angeles County from the California Department of Public Health COVID-19 Vaccine Progress Dashboard.³⁵ For this report, we focus on individuals who are fully vaccinated (i.e., completed their primary series).

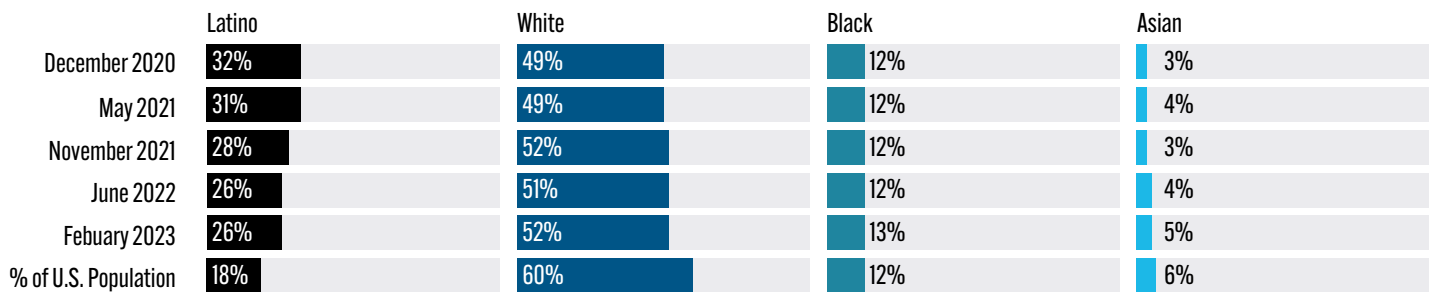
FINDINGS

Key Finding 1: As of February 2023, Latinos still experience a disproportionate share of COVID-19 cases relative to their population size in the U.S. and Los Angeles County.

In the first year of the pandemic, Latinos were disproportionately affected across all three geographies examined. Although Latinos represented 18% of the U.S. population in 2019, they accounted for 32% of cases from March 2020 through December 2020. In recent months, the share of cases among Latinos has started to approach or finally fall below their share of the population, irrespective of

geography. Throughout the pandemic, the case rates among Black and Asian populations were closer to their population share in the U.S. and California, but not in Los Angeles County (see Figure 3). Meanwhile, Black residents in Los Angeles County have experienced a greater share of COVID-19 cases than their share of the population (8-10% vs. 7%).

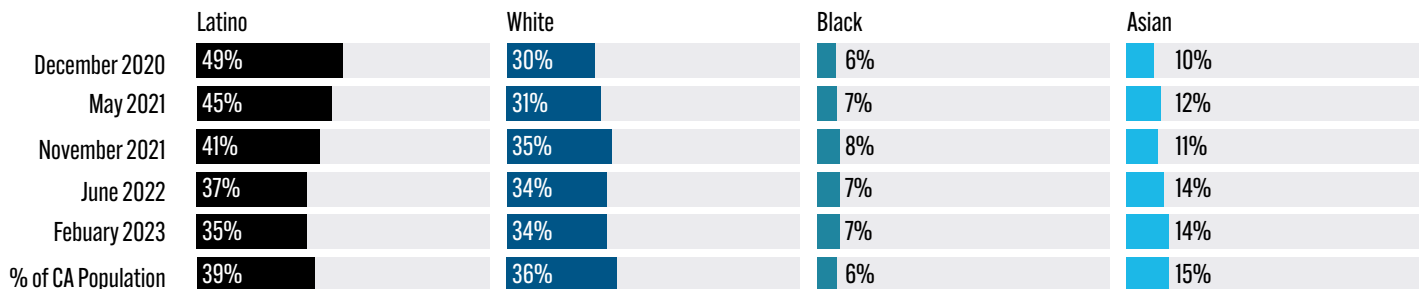
Figure 1. COVID-19 Cases by Race and Ethnicity in the United States, December 2020 to February 2023



Note: Between January 2020 and February 2023, race and ethnicity data were available for 65-67% of cases (see Appendix A).

Sources: CDC COVID-19 Case Surveillance Public Use Data and the U.S. Census Bureau American Community Survey, 5-year estimates, 2019

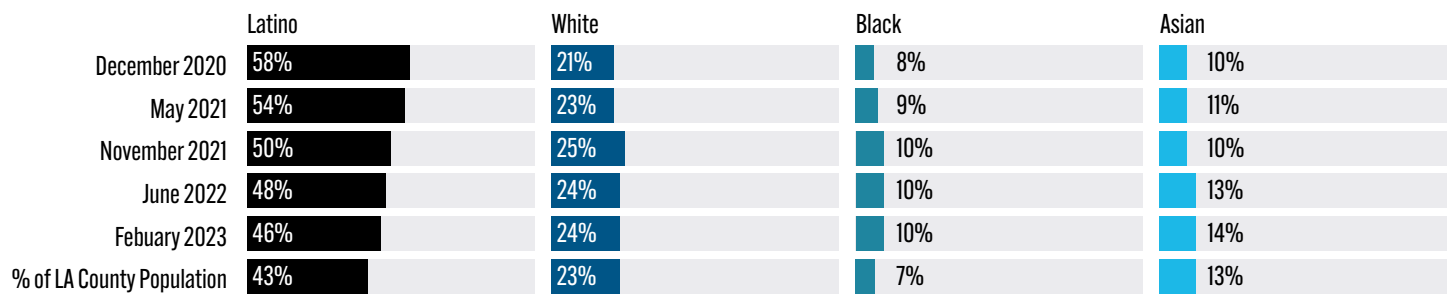
Figure 2. COVID-19 Cases by Race and Ethnicity in California, December 2020 to February 2023



Note: Between January 2020 and February 2023, race and ethnicity data were available for 43-52% of cases (see Appendix A).

Sources: CDC COVID-19 Case Surveillance Public Use Data and the U.S. Census Bureau American Community Survey, 5-year estimates, 2019

Figure 3. COVID-19 Cases by Race and Ethnicity in Los Angeles County, December 2020 to February 2023



Note: Between January 2020 and February 2023, race and ethnicity data were available for 40-48% of cases (see Appendix A).

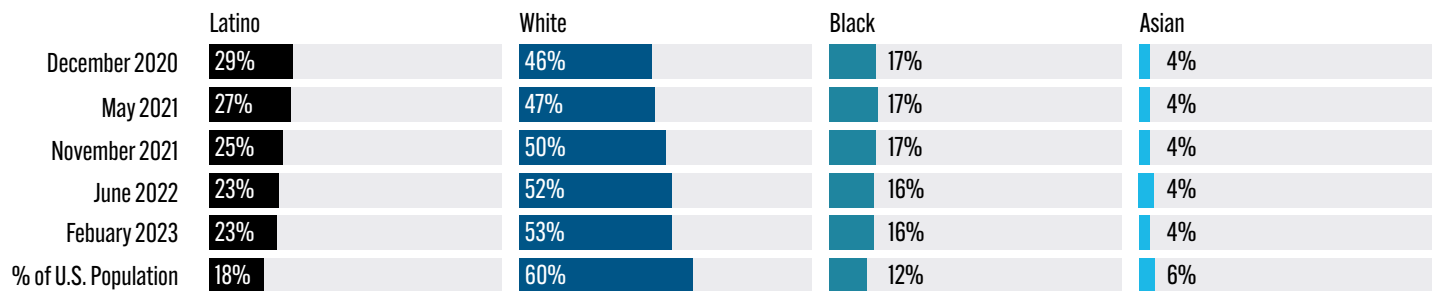
Data Sources: CDC COVID-19 Case Surveillance Public Use Data and the U.S. Census Bureau American Community Survey, 5-year estimates, 2019

Key Finding 2: Throughout the pandemic, Black persons have experienced disproportionately high rates of COVID-19-related hospitalization across all three geographies.

Hospitalization rates for the Black population have remained disproportionately high compared to their share of the population and have shown little to no improvement since the start of the pandemic. As of February 2023, across the U.S., Latino and Black persons have cumulatively experienced more hospitalizations than their share of the population (see Figure 4). However, for Latinos in all three geographic

levels, the incidence of hospitalization decreased throughout the pandemic. The hospitalization rates for the white population increased over time in all geographies, while the rate for the Asian population remained less than their share of the population for all geographies.

Figure 4. COVID-19 Hospitalizations by Race and Ethnicity in the U.S., December 2020 to February 2023



Note: Between January 2020 and February 2023, race and ethnicity data were available for 84% of hospitalizations (see Appendix A).

Sources: CDC COVID-19 Case Surveillance Public Use Data and the U.S. Census Bureau American Community Survey, 5-year estimates, 2019

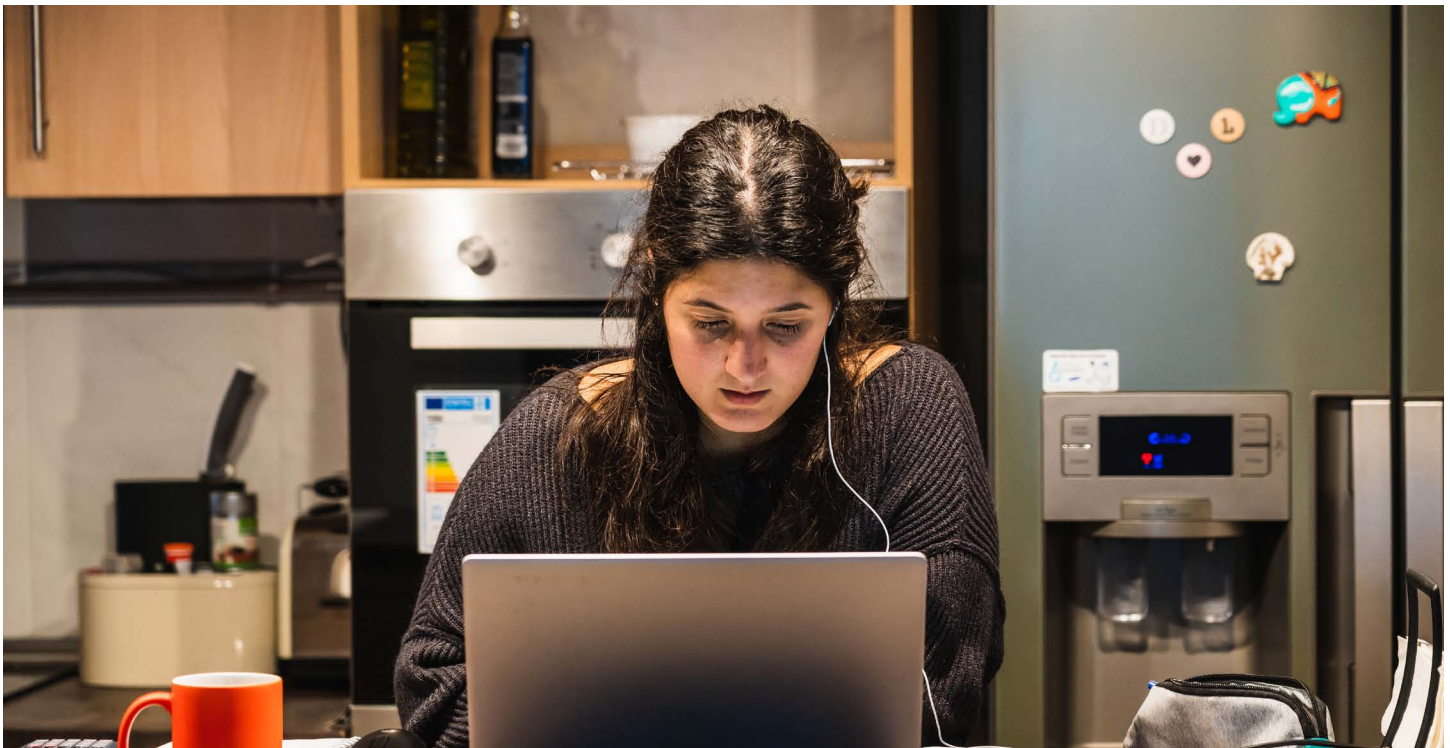


Figure 5. COVID-19 Hospitalizations by Race and Ethnicity in California, December 2020 to February 2023

	Latino	White	Black	Asian
December 2020	47%	31%	8%	11%
May 2021	44%	32%	9%	12%
November 2021	40%	36%	9%	10%
June 2022	37%	39%	10%	10%
February 2023	35%	41%	10%	10%
% of CA Population	39%	36%	6%	15%

Note: Between January 2020 and February 2023, race and ethnicity data were available for 65-68% of hospitalizations (see Appendix A).

Sources: CDC COVID-19 Case Surveillance Public Use Data and the U.S. Census Bureau American Community Survey, 5-year estimates, 2019

Figure 6. COVID-19 Hospitalizations by Race and Ethnicity in Los Angeles County, December 2020 to February 2023

	Latino	White	Black	Asian
December 2020	50%	25%	11%	12%
May 2021	48%	26%	12%	12%
November 2021	46%	27%	13%	11%
June 2022	42%	30%	15%	11%
February 2023	40%	32%	15%	11%
% of LA County Population	43%	23%	7%	13%

Note: Between January 2020 and February 2023, race and ethnicity data were available for 65% of hospitalizations (see Appendix A).

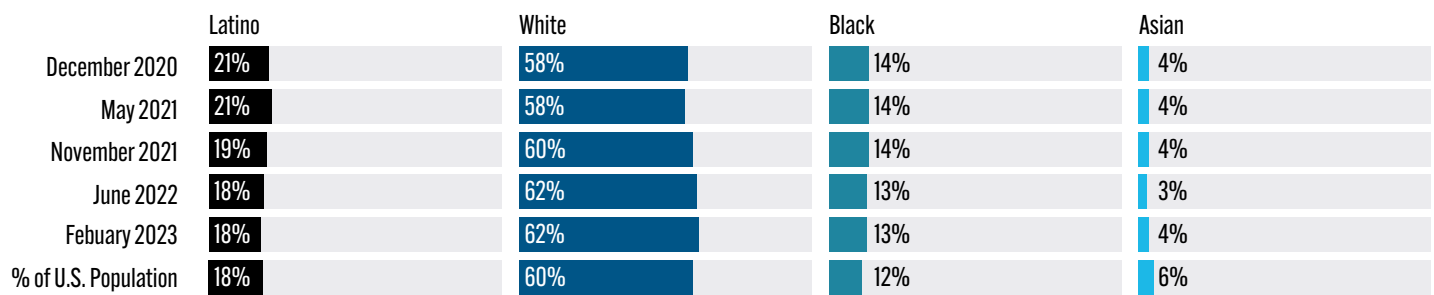
Sources: CDC COVID-19 Case Surveillance Public Use Data and the U.S. Census Bureau American Community Survey, 5-year estimates, 2019

Key Finding 3: COVID-19-related deaths for Latinos have remained disproportionately higher than their share of the population in California and Los Angeles County.

In terms of COVID-19-related deaths, Latinos have been disproportionately impacted relative to their population size in all geographies, particularly in California (see Figure 7) and Los Angeles County (see Figure 8). Similar to cases and hospitalizations, COVID-19-related deaths for Latinos in all geographies decreased from December 2020 to February 2023. COVID-19 deaths have increased over time for the white population in all three geographies. The rates in February 2023 indicate that white residents are experiencing a higher burden

of COVID-19-related deaths in California and Los Angeles County. In California, COVID-19 deaths among the Black population were proportional to their population size. However, across the country and in Los Angeles County, the Black population was disproportionately impacted. Asian COVID-19 deaths remained proportional to or less than their share of the population throughout the pandemic for all three geographies.

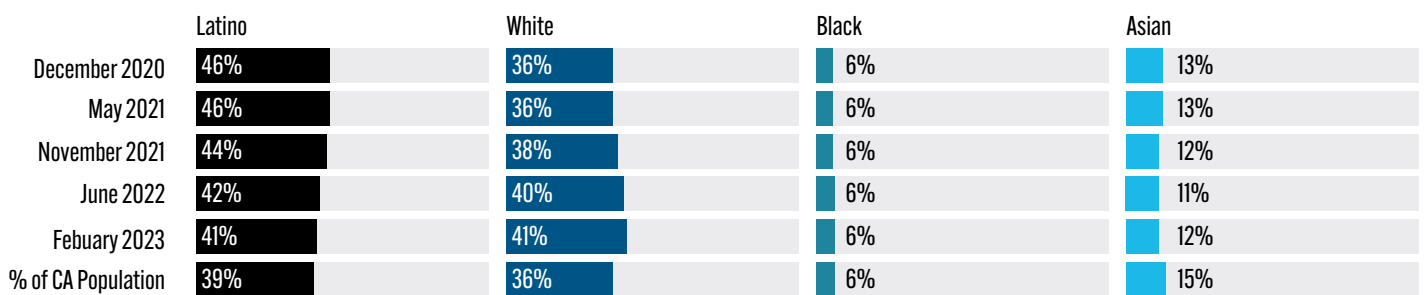
Figure 7. COVID-19 Deaths by Race and Ethnicity in the U.S., December 2020 to February 2023



Note: Between January 2020 and February 2023, race and ethnicity data were available for 85% of deaths (see Appendix A).

Sources: CDC COVID-19 Case Surveillance Public Use Data and the U.S. Census Bureau American Community Survey, 5-year estimates, 2019

Figure 8. COVID-19 Deaths by Race and Ethnicity in California, December 2020 to February 2023



Note: Between January 2020 and February 2023, race and ethnicity data were available for 92% of deaths (see Appendix A).

Sources: CDC COVID-19 Case Surveillance Public Use Data and the U.S. Census Bureau American Community Survey, 5-year estimates, 2019



Figure 9. COVID-19 Deaths by Race and Ethnicity in Los Angeles County, December 2020 to February 2023

	Latino	White	Black	Asian
December 2020	53%	24%	8%	14%
May 2021	53%	24%	8%	14%
November 2021	53%	25%	9%	13%
June 2022	51%	27%	9%	13%
February 2023	49%	28%	9%	13%
% of LA County Population	43%	23%	7%	13%

Note: Between January 2020 and February 2023, race and ethnicity data were available for 97% of deaths (see Appendix A).

Sources: CDC COVID-19 Case Surveillance Public Use Data and the U.S. Census Bureau American Community Survey, 5-year estimates, 2019

Key Finding 4: In the first 6 months after the COVID-19 vaccine was made available, Latinos and Black persons were the groups least likely to be fully vaccinated.

However, after November 2021, a smaller share of Latinos than whites were not fully vaccinated in the U.S. (see Figure 10). As of February

2023, Black individuals are the most likely to remain unvaccinated at the national level, at 55%.

Figure 10. Share of Individuals Not Fully Vaccinated by Race and Ethnicity in the U.S., May 2021 to January 2023

	Latino	White	Black	Asian
May 2021	62%	59%	72%	51%
November 2021	45%	51%	60%	41%
June 2022	41%	50%	56%	36%
January 2023	40%	48%	55%	33%

Note: Between January 2020 and January 2023, race and ethnicity data were available for 80% of individuals who completed their primary vaccine series." so that it reads "Between January 2020 and January 2023, race and ethnicity data were available for 80% of individuals who completed their primary vaccine series (see Appendix A).

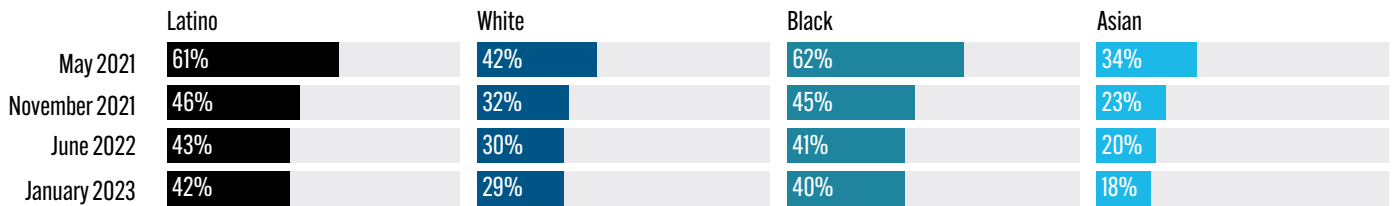
Source: CDC COVID-19 Vaccination Demographics in the United States.



In California and Los Angeles County, rates of unvaccinated Latinos decreased as eligibility expanded (see Figures 11 and 12). However, the percentage of unvaccinated Latinos remained higher than White and Asian populations. Black persons follow Latinos closely at the state and county level as the group with the second-highest share of individuals

without a completed vaccine series. The percentage of unvaccinated white and Asian populations in all geographies decreased faster than their Black and Latino counterparts in all stages of eligibility, illustrating a higher uptake in vaccinations.

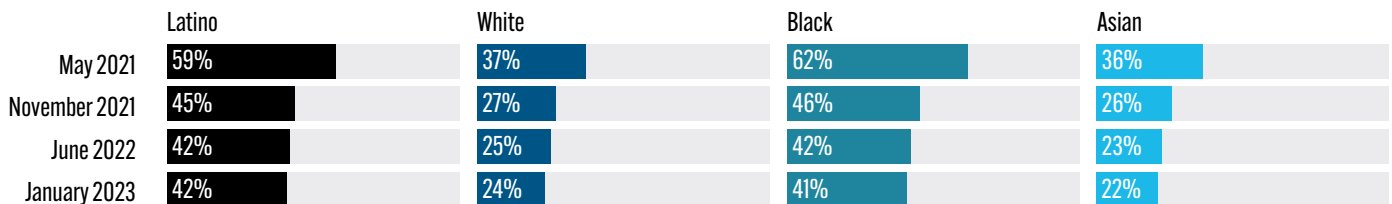
Figure 11. Share of Individuals Not Fully Vaccinated by Race and Ethnicity in California, May 2021 to January 2023



Note: Between January 2020 and January 2023, race and ethnicity data were available for 80% of individuals who completed their primary vaccine series. Between December 2020 and May 2021, only individuals 16 and older were eligible for the COVID-19 vaccine. Beginning in May 2021, eligibility changed to 12 and older; in November 2021, eligibility changed again to 5 and older; and in June 2022, all age groups were eligible for vaccines (see Appendix A).

Source: California Department of Public Health COVID-19 Vaccine Progress Dashboard.

Figure 12. Share of Individuals Not Fully Vaccinated by Race and Ethnicity in Los Angeles County, May 2021 to January 2023



Note: Between January 2020 and January 2023, race and ethnicity data were available for 80% of individuals who completed their primary series. Between December 2020 and May 2021, only individuals 16 and older were eligible for the COVID-19 vaccine. Beginning in May 2021, eligibility changed to 12 and older; in November 2021, eligibility changed again to 5 and older; and in June 2022, all age groups were eligible for vaccines (see Appendix A).

Source: California Department of Public Health COVID-19 Vaccine Progress Dashboard.

Key Finding 5: In California and Los Angeles County, COVID-19 vaccination data show higher shares of Black and Latino groups have not completed their primary series than the white and Asian populations.

The most current data in California (see Figure 14) and Los Angeles County (see Figure 15) from January 2023 show a higher percentage of Black and Latino persons not having completed their primary vaccination series. Alternatively, in all geographies, the Asian population has the smallest share of unvaccinated individuals.

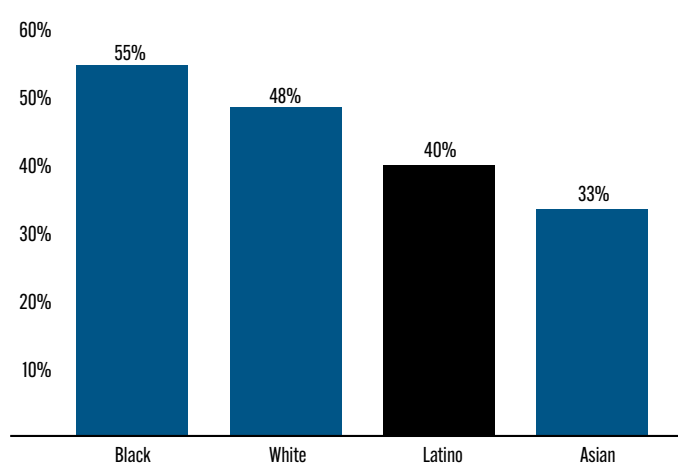


Figure 13. Share of Individuals Not Fully Vaccinated by Race and Ethnicity in the U.S., January 2023

Note: Between January 2020 and January 2023, race and ethnicity data were available for 80% of individuals who completed their primary series (see Appendix A).

Source: CDC COVID-19 Vaccination Demographics in the United States.

Figure 14. Share of Individuals Not Fully Vaccinated by Race and Ethnicity in California, January 2023

Source: California Department of Public Health COVID-19 Vaccine Progress Dashboard.

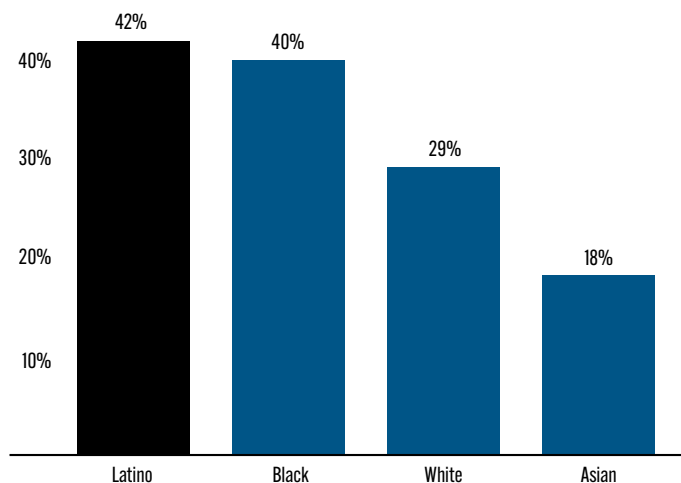
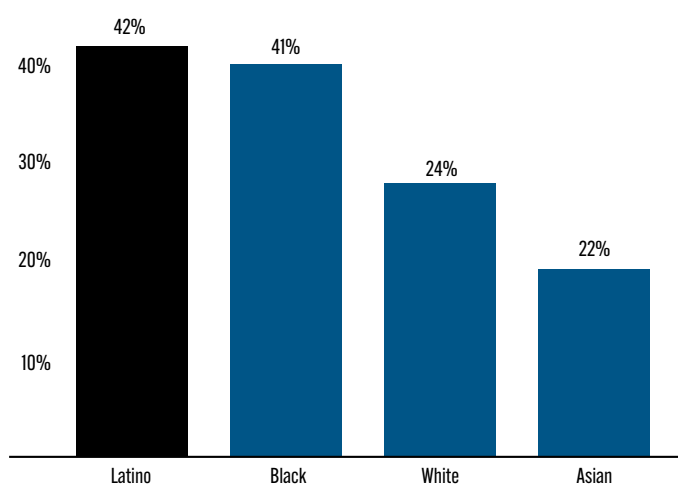


Figure 15. Share of Individuals Not Fully Vaccinated by Race and Ethnicity in Los Angeles County, January 2023

Source: California Department of Public Health COVID-19 Vaccine Progress Dashboard.





CONCLUSIONS

This brief sought to answer the following research questions: 1) Have racial disparities in COVID-19 outcomes persisted since their initial peaks, or have outcomes converged? and 2) To what extent have vaccination campaigns succeeded in reaching the most vulnerable populations since the initial vaccine authorizations? We analyzed data for the U.S., California, and Los Angeles County. Our results highlight that during the first year of the pandemic, before the availability of vaccines, Latino and Black communities disproportionately experienced more cases, hospitalizations, and deaths compared to white and Asian populations. As the pandemic progressed, the prevalence of cases, hospitalizations, and deaths generally improved for Latinos and Black persons in all three geographic areas, but important disparities remain.

Even after the vaccines became available, Latinos and Black individuals continued to experience a greater burden of COVID-19 cases, hospitalizations, and deaths throughout the remainder of the pandemic. The persistent burden experienced by Latino and Black populations is the reflection of the structural disadvantages these communities have faced throughout the pandemic, such as the greater likelihood of living in multigenerational homes and working as frontline, public-facing workers.³⁶ As we move forward into the endemic phase

and plan for future outbreaks of new COVID-19 variants, or of new diseases altogether, strategies to reduce transmission and reduce the disproportionate burden on our most vulnerable communities must address social inequalities that perpetuate racial and ethnic health disparities.

Our data on vaccine uptake indicates that the Latino and Black populations were the groups least likely to receive a COVID-19 vaccination during the initial rollout, despite their heightened risk of transmission. Low uptake among these populations reflects misinformation,³⁷ general vaccine hesitancy, as well as an inequitable distribution of resources to minority communities. The prevalence of hesitancy among these communities is not surprising given the long history of inequities and mistreatment of racial minorities in the U.S.³⁸ The slow uptake of COVID-19 vaccinations among Black and Latino populations in California and Los Angeles County has left these communities at continued risk for contracting COVID-19, with little protection against severe outcomes. As long as outreach efforts to increase vaccine uptake ignore the history of medical racism, distrust and hesitancy among minority populations will persist.

POLICY RECOMMENDATIONS

Based on our findings, we provide the following recommendations to reduce the racial and ethnic disparities observed throughout the COVID-19 pandemic:

- **Improve the public health data infrastructure.** Our analysis of COVID-19 outcomes and vaccinations was limited by the availability of race and ethnicity information (see Appendix A). Section 4302 of the Affordable Care Act requires the Department of Health and Human Services (HHS) to implement a standard approach to collecting demographic information (e.g., race, ethnicity, sex, primary language, and disability status) from those insured under Medicaid and the Children’s Health Insurance Program, as well as across their population health surveys.³⁹ We recommend that this standard be applied uniformly to public health departments to monitor health disparities and measure them accurately. Improved data collection will allow for more targeted responses to alleviate disparities.
- **Continue to support equitable access to resources necessary for alleviating the burden of COVID-19 on minoritized populations.** To alleviate the health disparities in minority populations, lawmakers need to remain committed to policies rooted in an equitable distribution of resources. For example, funds made available by the Coronavirus Aid, Relief and Economy Security Act (CARES Act) have allowed the state of California to implement practices to combat health disparities, including free transportation to vaccination sites, partnerships with mobile clinics in local schools and places of worship, and continued access to vaccines, testing, and treatment in the communities most affected by COVID-19.⁴⁰ Additionally, the CARES Act has provided funds for local initiatives that support the most impacted populations, such as the Los Angeles County Department of Public Health’s Community Health Worker Outreach Initiative.⁴¹
- **Ensure free or subsidized access to COVID-19 vaccines and boosters for the uninsured.** With the end of the COVID-19 Public Health Emergency, access to the COVID-19 vaccine and consequent boosters will transition to the commercial market.⁴² As a preventative health service, most private insurance companies will likely cover the vaccine without a co-pay.⁴³ Medicare and Medicaid will also continue to cover the costs of COVID-19 vaccinations without co-pays or cost-sharing through September 24, 2023.⁴⁴ However, this still leaves 30 million uninsured Americans without guaranteed access to COVID-19 vaccines and boosters.⁴⁵ Without continued funding from the federal government, providing vaccines for the most vulnerable will be left to the discretion of local governments, creating the potential for persistent vaccination gaps.
- **Reauthorize and bolster the Pandemic and All-Hazards Preparedness Act.** In 2006, Congress passed the Pandemic and All-Hazards Preparedness Act (PAHPA), in order to “improve the Nation’s public health and medical preparedness and response capabilities for emergencies.” PAHPA must be reauthorized every five years,⁴⁶ and is currently set to expire on September 30, 2023. We recommend that Congress reauthorize the program and include designated funding for local and state health departments to modernize data systems and grant authority to the CDC to adopt uniform standards (mentioned above) for data collection and surveillance.⁴⁷ We also recommend that the reauthorization expand Medicare coverage to include services provided by pharmacists, such as testing and providing vaccines against COVID-19. The extended coverage would increase efficiency in mobilizing the medical workforce as needed during public health emergencies and would increase access to protective countermeasures, particularly in medically underserved communities.⁴⁸

APPENDIX A:

DATA SOURCES AND NOTES ON DATA LIMITATIONS

DATA SOURCES FOR COVID-19 CASES, HOSPITALIZATIONS, AND DEATHS

We use the CDC Case Surveillance public use data to examine confirmed COVID-19 cases, hospitalizations, and deaths in the U.S., California, and Los Angeles County.⁴⁹ Following the state-mandated case reporting, local public health departments then voluntarily send de-identified, patient-level data about COVID-19 cases to the CDC. The CDC processes and aggregates case data across all jurisdictions to create the surveillance dataset.⁵⁰

Because local public health departments are not mandated to report to the CDC, state-level data vary significantly. While most states have reported patient-level data to the CDC throughout the pandemic, as of June 2021, five states had reported less than 10% of their total case data: Wyoming, Texas, Louisiana, West Virginia, and Missouri.⁵¹ Additionally, 11 states or territories had not reported any patient-level COVID-19 death data to the CDC.⁵² Even among states that do report, standards are inconsistent.⁵³ The demographic groups used by public health agencies across the U.S. are not standardized, and data are often incomplete.

This is reflected in the CDC's surveillance datasets: as of June 2021, the CDC dataset with geographic information only included 80.9% of all COVID-19 cases and 46.7% of all COVID-19 deaths reported by state public health agencies.⁵⁴ Further, the CDC consistently underreported Black and Latino COVID-19 deaths while overreporting deaths among seniors (those ages 65 years and older) and non-Hispanic white individuals.⁵⁵ Even for the data collected and reported, only 66.8% of national COVID-19 surveillance observations from March 2020 through February 2023 have complete race and ethnicity data available.⁵⁶

Despite data limitations, the CDC case surveillance public use data provides the most comprehensive and consistent source of patient-

level COVID-19 data. The surveillance dataset allows an analysis of COVID-19 outcomes—confirmed cases, hospitalizations, and deaths—by demographic group and geographic level throughout the entire pandemic. These case surveillance data are updated monthly and include information on demographics (e.g., race, ethnicity, and age) and geography (county and state of residence).

DATA SOURCES FOR COVID-19 VACCINATIONS

We examined national trends in vaccination using publicly available data from the CDC,⁵⁷ which estimates the number of people who have received one dose, are fully vaccinated (i.e., completed their primary series), or have received a booster. This dataset includes relevant demographic information. As with the surveillance dataset, the vaccine data are composed of reported vaccinations from local public health agencies and jurisdictions. Similar to the CDC's surveillance data on COVID-19 indicators, as of February 2023, only 79.7% of nationally available data had complete race and ethnicity data available.⁵⁸ However, the CDC does not provide this data with demographic detail at the state or local level.

In order to assess vaccination trends for California and Los Angeles County, we obtained data from the California Department of Public Health COVID-19 Vaccine Progress Dashboard.⁵⁹ This dataset provides vaccination trends at the state and local levels by race and ethnicity. Unlike the data available from the CDC, more than 95% of vaccination data presented by the California Department of Public Health contained demographic information on race and ethnicity.⁶⁰

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